

1. An apparatus for packaging an integrated circuit, the apparatus comprising:
  - a substrate comprising a grounding path;
  - an integrated circuit die attached to the top surface of the substrate;
  - a plurality of die connections connecting the integrated circuit die to the substrate;and
  - a package shell attached to the top surface of the substrate and electrically connected to the grounding path, the package shell configured to cover and electromagnetically shield the integrated circuit die and the plurality of die connections.
2. The apparatus of claim 1, wherein the package shell is filled with a thermally conductive filler configured to thermally couple the integrated circuit die to the package shell.
3. The apparatus of claim 1, wherein the die connections are wire-bond connections.
4. The apparatus of claim 1, wherein the package shell is a thermally conductive heat spreader.
5. The apparatus of claim 1, wherein the package shell is bonded to the substrate with an electrically conductive adhesive.
6. The apparatus of claim 5, wherein the electrically conductive adhesive is a silver-filled epoxy.
7. The apparatus of claim 1, wherein the package shell comprises at least one port configured to facilitate filling the package shell with a thermally conductive filler.

8. The apparatus of claim 1, wherein the package shell comprises at least one vent configured to vent gases displaced by a thermally conductive filler.

9. The apparatus of claim 1, further comprising a package frame configured to laterally surround the package shell.

10. The apparatus of claim 9, wherein the package frame is molded over a brim of the package shell.

11. The apparatus of claim 1, wherein the substrate is configured to electrically connect a plurality of bonding pads on the top surface of the substrate with an array of connecting pads on a bottom surface of the substrate.

12. The apparatus of claim 11, further comprising an array of solder balls attached to the connecting pads.

13. The apparatus of claim 1, wherein the substrate is a printed circuit board.

14. A method for packaging an integrated circuit, the method comprising:

attaching an integrated circuit die to a top surface of a substrate;

connecting the integrated circuit die to the substrate with a plurality of die connections;

attaching a package shell to the top surface of the substrate, the package shell configured to cover and electromagnetically shield the integrated circuit die and the plurality of die connections; and

electrically connecting the package shell to a grounding path.

15. The method of claim 14, further comprising filling the package shell with a thermally conductive filler configured to thermally couple the integrated circuit die to the package shell.

16. The method of claim 15, wherein filling the package shell with a thermally conductive filler comprises molding a package frame around a perimeter of the package shell.

17. The method claim 14, wherein electrically connecting the package shell to a grounding path comprises bonding the package shell to the substrate with an electrically conductive adhesive.

18. The method of claim 17, wherein the electrically conductive adhesive is a silver-filled epoxy.

19. The method of claim 14, wherein the substrate is a printed circuit board.

20. The method of claim 14, further comprising attaching an array of solder balls to the connecting pads.

21. The method of claim 14, further comprising laterally surrounding the package shell with a package frame.

22. The method of claim 21, wherein laterally surrounding the package shell with a package frame comprises molding the package frame over a brim of the package shell.

23. A system for packaging an integrated circuit, the system comprising:
- a circuit board interconnecting a plurality of integrated circuit packages;
  - a power supply configured to power the circuit board; and
  - at least one package of the plurality of an integrated circuit packages comprising:
    - a substrate comprising a grounding path,
    - an integrated circuit die attached to the top surface of the substrate,
    - a plurality of die connections connecting the integrated circuit die to the substrate, and
    - a package shell attached to the top surface of the substrate and electrically connected to the grounding path, the package shell configured to cover and electromagnetically shield the integrated circuit die and the plurality of die connections.